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**PRECIOUS METALS RECOVERY PROGRAM
(PMRP)**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction augments AFMAN 23-110, Volume 6, Chapter 4, Precious Metals Recovery Program (PMRP) and prescribes procedures for Hickam AFB participation in the Department of Defense (DoD) Precious Metals Recovery Program. The PMRP encompasses silver, gold, and the platinum family. The platinum family includes platinum, palladium, iridium, rhodium, osmium, and ruthenium. It applies to all units assigned or attached and associates of 15th Airlift Wing, except US Air Force Reserve and Air National Guard units which generate and process scrap/waste materiel that contain precious metals.

SUMMARY OF REVISIONS

This revision incorporates procedures and information formerly published in 15 ABWI 23-101, dated 7 May 01. New or revised material is indicated by an bar (|) in left margin.

1. GENERAL.

1.1. **Policies and Procedures:** These policies and procedures apply to all organizations assigned, attached, or tenant to Hickam AFB. This includes any organization managing, receiving, handling, storing, issuing, using, requisitioning, purchasing, shipping, or contracting when precious metals are involved; disposing of fine precious metals or items containing precious metals; and precious metal-bearing scrap, sludge, solutions, powders, amalgam, flake, black and white photographs, or other mixtures/forms.

1.2. **Applicability:** All activities at Hickam AFB, regardless of organizational entity, will cooperate to the fullest extent with the installation Precious Metals Recovery Program (PMRP) manager, the Resources Protection Executive Committee (RPEC), the Precious Metals Area Representative (PMAR), and the Defense Reutilization and Marketing Services (DRMS) to ensure a successful program. Units in a deployed status will participate in the PMRP at the temporary host installation.

1.3. **Exemption:** Organizations, which generate only XD, XF, ND, or NF expendability, recoverability, and reparability code (ERRC) items, are exempt from participation in this program and the requirements set forth in this instruction.

2. RESPONSIBILITIES.

2.1. Installation Commander Responsibilities: The installation commander

(15 AW/CC) is responsible for the program and delegates the authority to the 15 MSG/CC, Mission Support Group Commander, who will appoint, in writing, a PMRP manager and alternate to manage and act as the focal point for all matters concerning the PMRP.

2.2. Precious Metals Recovery Program Manager (PMRP) Responsibilities:

2.2.1. Ensure that local regulations or operating instructions are developed and implemented to comply with overall program requirements.

2.2.2. Maintain a list of organizations, primary/alternate monitor's name, telephone numbers, location, and kind of precious metal scrap generated. Maintain a list, as applicable, of the type of recovery equipment used and kind of fine precious metal/high precious metal content items assigned controlled item code (CIC) "R".

2.2.3. Ensure organizations receiving, issuing, and using fine precious metals/high precious metals content items assigned CIC "R" appoint an individual(s), in writing, to receipt for and issue these items.

2.2.4. Ensure each organization having electrolytic recovery unit and/or silver recovery cartridge point, appoint in writing, an individual(s) to harvest the silver flake/sludge from the electrolytic unit and/or change the cartridge. Organization will appoint, in writing, a disinterested individual(s) to witness the harvesting and verify the weight of the flake/sludge or recovery cartridge.

2.2.5. Ensure each organization initiates and maintains a self-inspection program. This program will include, as a minimum, control and protection of precious metals residue; compliance with receipt, issue, storage, and turn-in requirements, and, if applicable, periodic testing of hypo solution draining from electrolytic units and silver recovery cartridges.

2.2.6. Conducts program management training periodically or as required for organizational monitors.

2.2.7. Prepare a schedule for and visit each participating activity at least annually for review of operation, documentation, and adherence to overall program requirements. This visit may be accomplished more frequently if deemed necessary for program compliance. Prepare and maintain a report of deficiencies noted during the inspection and suspense a copy of findings to the organization for corrective action.

2.2.8. Notify the appropriate Item Manager (IM) of any items found to contain precious metals if a Precious Metals Indicator Code (PMIC) is not assigned, or if it is found that an assigned PMIC is incorrect.

2.2.9. Act as liaison with the DRMS and PMAR to keep abreast of precious metals recovery techniques, request guidance concerning procedures for recovery and transfer of precious metals, and request necessary training and coordinate visits by the PMAR. Notify the PMAR of requirements for precious metals recovery equipment, spare parts, and supplies that are furnished by the

Defense Logistics Agency (DLA) on a free-issue basis. Request the PMAR provide any training workshops, seminars, or briefings required.

2.2.10. Ensure organizations receiving, issuing, handling, and using fine precious metals/high precious metals content items assigned CIC "R", maintain auditable records, and that the records and quantities of material on hand are audited by disinterested personnel at least semiannually.

2.3. Organization Commander Responsibilities:

2.3.1. Appoint, in writing, a primary and alternate PMRP monitor for their organization. Other personnel may be appointed as shop monitors to assist the organization monitor if desired.

2.3.2. Appoint, in writing, an individual(s) to harvest silver flake/sludge from electrolytic units and/or change silver recovery cartridges if used by the organization.

2.3.3. Appoint, in writing, a disinterested individual(s) (one who does not operate the equipment or harvest the silver) to witness the harvesting and verify the weight of flake/sludge harvested or the weight of the cartridge if recovery equipment is used by the organization.

2.3.4. Appoint an individual(s) other than the organization monitor or alternate to receive, issue, and turn in fine precious metals/high precious metal content items assigned CIC "R" if these items are used by the organization.

2.3.5. Furnish a copy of all appointment letters to the installation PMRP manager.

2.4. Organization Monitor Responsibilities:

2.4.1. Cooperate to the fullest extent with the installation PMRP manager, the RPEC, the DRMS, and the PMAR.

2.4.2. Attend training classes conducted by the installation PMRP manager and provide training to shop monitors, if assigned.

2.4.3. Develop and maintain an operating instruction (OI) to manage the organization's PMRP if needed. Copies of all OIs will be furnished to the installation PMRP manager.

2.4.4. Develop and maintain a self-inspection checklist for the PMRP. This checklist will include, as a minimum, control and protection of precious metals residue; compliance with receipt issue, storage, and turn-in procedures; and periodic testing of hypo solution draining from electrolytic units and silver recovery cartridges, if applicable. Self-inspections will be performed semiannually in May and November.

2.4.5. Ensures proper handling, accountability, safeguarding, and security of fine precious metals/high precious metals content items assigned CIC "R", silver flake/sludge, and silver recovery cartridges.

2.4.6. Maintain auditable records of:

2.4.6.1. Fine precious metals by troy weight received, issued, and turned in to the DRMS.

2.4.6.2. Silver flake harvested from electrolytic units by troy weight and turned in to the DRMS.

2.4.6.3. Silver-bearing sludge harvested from electrolytic units and stripping tanks by troy weight and turned-in to the DRMS.

2.4.6.4. Silver recovery cartridges obtained and turned in to the DRMS by serial number. Include the date cartridges were placed into operation, the date removed for turn-in, and the weight measured in pounds.

2.4.6.5. Other scrap-bearing precious metals turned in to the DRMS by pounds.

2.4.7. Ensure organization work centers generating condemned items bearing precious metals collect these items and turn them in at least annually, or sooner if quantities warrant.

2.4.8. Maintain a record folder for the organization's recovery program. The folder will contain the following items:

2.4.8.1. Monitor's appointment letter.

2.4.8.2. Operating Instructions (if applicable).

2.4.8.3. A copy of this instruction.

2.4.8.4. Copies of inspection reports.

2.4.8.5. Copies of turn-in documents. (Maintain these copies until the next inspection by the base PMRP manager.)

2.4.8.6. Turn-in control log ([Attachment 1](#)). (This may be maintained in the work center.)

2.4.8.7. Results of monthly testing of hypo solution from silver recovery units/cartridges, if applicable. (This may be maintained in the work center.)

2.5. **Resource Protection:** Specific protection requirements such as the need for alarms, controlled arm, and physical security of material and equipment will be determined locally, considering the value of each category. Guidance from the security police and the RPEC will be requested when establishing these requirements.

3. IDENTIFICATION OF PRECIOUS METALS.

3.1. **Precious Metal Indicator Codes (PMIC):** Items of supply which contain precious metals are identified by assignment of a PMIC. These codes indicate the existence or non-existence of precious metal(s) contained in or on items of supply (see table below). Note: PMICs have not been assigned to all precious metal items in the federal supply cataloging system and a completion date has not been established. Anyone discovering an item which is believed to contain precious metals, but does not have a PMIC assigned, will notify the base PMRP manager.

Table 1. Precious Metals Indicator Codes

PMIC	DEFINITION
A	Item does not contain precious metal.
C	Item contains combination of two or more precious metals (silver, gold, platinum).
G	Item contains gold.
P	Item contains platinum family metals.
S	Item contains silver
U	Precious metal type is unknown.
V	Precious metal type varies between manufacturers.

3.2. **Recoverable PMIC:** Assignment of a recoverable PMIC will cause the appropriate phrase to appear on all issue documents to identify the type and quantity of precious metals contained in an item. All organizations using items with a recoverable PMIC assigned are tasked with recovery of these items through turn-in of the items or recovery and turn-in of the precious metals contained in the items.

3.3. **Bench Stock Items:** Master and organizational bench stock listings (SO4) contain the PMIC assigned to an item. Bench stock bin labels and shadow boards for precious metals items will be highlighted in blue for ease of identification and to aid in recovery of these items by requiring a one-for-one exchange whenever an item is issued.

4. SAFETY, HEALTH, AND ENVIRONMENTAL CONSIDERATIONS.

4.1. **Processing Precious Metals:** Many of the processes inherent in processing precious metals bearing material or scrap are dangerous and require preventive measures to preclude injury/illness to personnel, damage to property, or pollution of the environment. Among the more commonly recognized hazards associated with precious metals processing are:

4.1.1. **EXPOSURE:** Prolonged exposure to low-level concentrations of gold or silver compounds, varying in toxicity, could cause chronic liver degeneration, blood disorders, and skin allergies. Toxic effects are caused by ingestion or inhalation of the compounds.

4.1.2. **INCINERATORS:** Operation of incinerators used to produce precious metals-bearing ash could present safety, fire, health, or environmental pollution problems.

4.1.3. **DANGEROUS PRECIOUS METALS:** Some items containing precious metals are dangerous: tripping and plating solutions/residues may contain acids and cyanide; silver-cadmium and silver-zinc batteries contain acid and hydroxide electrolytes; some batteries contain explosive devices; and computers may contain polychlorinated biphenyl (PCB) transformers.

4.1.4. **SILVER RECOVERY:** Possible ground and water pollution could occur when spent hypo solution is discharged from a silver recovery operation. Use of electrolytic silver recovery equipment could also present electrical shock hazards.

4.2. **Dental Amalgam:** Due to Environmental Protection Agency (EPA) restrictions on the transportation of dental amalgam, this material will no longer be processed for recovery under the PMRP.

Dental amalgam will be processed for hazardous waste disposal through the Base Civil Engineering, Environmental Compliance Office (15 CES/CEVC).

5. STATEMENT OF WORK.

5.1. **Statement of Work (SOW):** Any organization preparing a statement of work for any activity operating on Hickam AFB where precious metals are used or recovery is involved, must ensure that the precious metals recovery program is addressed. Areas to consider:

- 5.1.1. Who will furnish raw materials such as film, film paper, acids, solutions, anodes, repair parts, etc.?
- 5.1.2. Who will retain recovery rights to expended material?
- 5.1.3. Who will furnish equipment required for recovery of precious metals?
- 5.1.4. How will spent hypo solutions be processed for silver recovery?
- 5.1.5. Who will perform minor maintenance /calibration on equipment?
- 5.1.6. Who will maintain required records?

5.2. **Distribution of SOW:** A copy of all SOW involving precious metals will be furnished to the base PMRP manager (15 LRS/LGRM).

6. SPECIFIC RECOVERY PROCEDURES.

6.1. **Recovery Log.** Each organization/work center will maintain a recovery log, AF Form 3131, General Purpose Form, to record turn-in of precious metals (see [Attachment 1](#), Sample Turn-In Control Log). This log will consist of the following information:

- 6.1.1. Document number of turn-in.
- 6.1.2. Description of material (and serial number if item is a recovery cartridge).
- 6.1.3. PMIC or Scrap Classification List (SCL) code as applicable (see [Attachment 3](#)).
- 6.1.4. Weight of material turned in.
- 6.1.5. Signature of harvester and date (if applicable).
- 6.1.6. Signature of witness and date (if applicable).

6.2. Items Bearing Precious Metals:

- 6.2.1. Each organization/work center will have containers available for collection of condemned XB3 items containing precious metals.
- 6.2.2. Separate containers are required for each PMIC or SCL generated by the organization/work center. (Collection of the items by the PMIC or the SCL is the option of the generating organization/work center.)
- 6.2.3. Non-precious metal items will not be placed in containers designated for precious metals.
- 6.2.4. Each PMIC or SCL will require a separate, typed DD Form 1348-1A, DoD Single Line Item Release/Receipt Document, turn-in document (see [Attachment 2](#)) for format.

6.3. Electrolytic Units/Silver Recovery Cartridges:

6.3.1. Spent hypo solution draining from these units/cartridges will be tested at least monthly using silver estimating test paper and the results documented.

6.3.2. Generating activities are responsible for performing minor preventive maintenance of these units such as day-to-day adjustments, cleaning, and replacement of fuses and hoses. Major repair/replacement will be coordinated with the PMRP.

6.3.3. If units become inoperative, spent hypo solution will be collected in containers pending repair of the unit or alternate processing arrangements made. Under no circumstances will hypo solution be allowed to enter drains without first being processed through a recovery unit.

6.3.4. When harvesting silver flake/sludge from electrolytic units or replacing recovery cartridges/cores, both the person performing the harvesting and a disinterested witness will verify weights and document the weight in the recovery log.

6.4. **Recovery Cartridges Containing Removable Cores:** Removable cores will be air dried for a minimum of 24 hours and then placed in a double plastic bag prior to processing for turn in to the DRMS.

6.5. **Dental Amalgam:** Recovered dental amalgam will be collected in unbreakable containers and submersed in hypo solution, glycerin, or H-, x solution to prevent release of mercury vapor. This material will then be processed through the Base Civil Engineering, Environmental Compliance Office (15 CES/CEVC) for hazardous waste disposal.

7. TURN-IN PROCEDURES.

7.1. **Exempt Items.** ERRC XD, NF, ND, NF, and serviceable XB3 items will be processed in accordance with normal supply turn in procedures.

7.2. **Condemned XB3 Items.** Condemned XB3 items bearing precious metals will be segregated from other scrap and turned in under the PMRP.

7.3. **Frequency of Turn-In.** Turn-in of precious metals/items bearing precious metals will be accomplished annually, or sooner if quantities warrant. Turn-in will be made to DRMS using a typed off-line (do not post) DD Form 1348-1A, DoD Single Line Item Release/Receipt Document (see [Attachment 2](#) for format).

7.3.1. DRMS personnel will verify the weight of the material delivered and sign the DD Form 1348-1A acknowledging receipt of the material.

7.3.2. The person making the delivery will forward one copy of the signed DD Form 1348-1A to the organization monitor.

WILLIAM A. MORGAN, Colonel, USAF
Commander, 15th Mission Support Group

Attachment 1

SAMPLE TURN-IN CONTROL LOG

A1.1. Sample AF Form 3131, General Purpose Form.

**SAMPLE
TURN-IN CONTROL LOG**

DOCUMENT NUMBER	DESCRIPTIONS	**PMIC/SCL	WEIGHT	HARVESTER	WITNESS
F999AB01020001	ELECT. SCRAP	G	3 LB		
F999AB01020002	RECOVERY CARTG. S/N 12345	P06	45 LB	SIGNATURE 12 APR 96	SIGNATURE 12 APR 96
PLACE IN USE 12 APR 96	RECOVERY CART.S/N 12468	P04			
F999AB02140001	EXPOSED X-RAY	FILM	P04	123 LB	
F999AB03140001	ELECT. SCRAP	B	16 LB		
F999AB03140002	RECOVERY CART. S/N 12468	P06	47 LB	SIGNATURE 12 OCT 96	SIGNATURE 12 OCT 96

** Use [Attachment 3](#) to determine SCL code.

Attachment 2**PREPARATION OF DISPOSAL TURN-IN DOCUMENT (DD FORM 1348-1A)**

(Document Must Be Typed)

Table A2.1. DD Form 1348-1A, Turn-in Document Information.

Card Column or Block	Entry
1-3	A5J
4-22	Blank
23-24	Unit of Issue (see Note 1)
25-29	Weight
30-35	See Note
36-39	Julian Date
40-43	Serial Number (see Note 3)
44-61	Blank
62	PMIC (if applicable)
63-64	Blank
63	A
66-80	Blank
A	FB5260 (FM5260 for hospital) Organization/Building Number Hickam AFB HI
B	DRMO
C	Demil "A"
U	Security classification (i.e. unclassified)
V	Do Not Post
W	See Note 4
X	Description of Material (and SCL if applicable)
Y	Precious Metals
1	Signature of person making turn-in and date
4	Signature of person verifying- weight and acknowledging receipt and date

NOTES:

1. LB = pound; GM = gram; TO= troy ounce.
2. The base hospital will use FM5260. All other organizations will use their organization/shop code preceded by the letter "F" (example: F999AB).
3. The base hospital will use serial numbers beginning with 7700 each day. All other organizations will use serial numbers beginning with 0001 each day.
4. Make the following entries as applicable:
 - a. If the document is for a silver recovery cartridge, enter serial number of the cartridge.
 - b. If the document is for silver flake/sludge, indicate whether weighed wet or dry.

Attachment 3

PRECIOUS METALS SCRAP CLASSIFICATION LIST (SCL) CODES

Table A3.1. Precious Metals Scrap Classification List Codes.

SCL CODE	DESCRIPTION
PBI	Silver chloride-magnesium batteries (battery construction consists of silver chloride positive plates with aluminum-zinc-magnesium alloy negative plates and uses water as the electrolyte), i.e., MK35, N4K61, MK67 torpedo batteries and sonobuoy batteries.
PB2	Silver zinc submarine batteries consisting of large (typically 30 pounds and over although they may be as light as 20 when drained of electrolyte) batteries/cells which when in use are interconnected to form one large battery. Cases may be of fiberglass or plastic construction. (Primarily research and OSRV submarine batteries.)
PB3	RESERVED FOR DRMS-OPE USE ONLY.
PB4	Silver zinc batteries, which are encased in plastic, battery cell sections and field telephone batteries in fiberboard cases.
PB5	Silver zinc batteries (complete battery) encased in metal or with metallic attachments.
PB6	Silver-cadmium batteries.
PB7	RESERVED FOR DRMS-OPE USE ONLY.
P02	Expendable hypo solution derived from the processing of photographic film and papers.
P04	Photographic films and papers (exposed, unexposed, processed, or unprocessed), X-ray, graphic charts, motion picture, photo typesetting, aerial, and other types of silver-bearing photographic film and paper.
P05	Ash from photographic films and papers Generated from incineration of (exposed, processed) X-ray, graphic arts, motion picture, photo typesetting, aerial, black and white, and other types of silver-bearing photographic film and paper.
P06	Exhausted chemical recovery cartridges used in recovery of silver from hypo solution by metallic displacement. Includes sludge recovered from cartridges.
P07	Cyanide-based liquids, sludge, powder- or salts derived from plating and/or de-plating operations. May contain gold, silver, or platinum family metals.
P08	Acid-based liquids, sludge, powder, or salts derived from plating and/or de-plating, operations. May contain gold, silver, or platinum family metals.
P12	Silver-bearing batteries not otherwise classifiable.
P13	High temperature alloy containing precious metals (-, old, silver, and/or platinum family) such as stator vanes, aircraft engine exhaust cones, and aircraft panels; excludes spark plugs, thermocouple, and breakers.
P24	Segregated, but not sorted, electrical and electronic scrap containing precious metals (gold, silver, platinum family or a combination). Scrap not segregated/classified at a time of receipt or downgrade will continue to be processed under SCL H24.

SCL CODE	DESCRIPTION
P8A	Platinum family (platinum, rhodium, palladium, ruthenium, iridium, and osmium) bearing and plated such as platinum-plated electronic scrap contact points/breakers, insignia, and coding boards; excludes spark plugs, thermocouple, and entire magnetos.
P8B	Silver-bearing washed or plated material such as tableware, hollowware, insignia, fixtures, buttons, and clean silver-plated electronic scrap.
P8C	Gold-bearing washed or plated material including badges, insignia, lapel pins, miscellaneous hardware, used anodes and turnings, and clean gold-plated electronic scrap.
P8D	Silver-bearing, dental amalgam; excludes unused silver pellets used to make amalgam.
P8E	Sorted electrical/electronic scrap containing gold, silver, and platinum family metals which is predominantly copper-based and may contain insignificant amounts of other non-removable metals, e.g., iron, aluminum, etc. Includes, but not limited to, circuit boards/cards (without metal frames/back although a small amount of metal is acceptable), plastic-housed connectors, silver/silver-coated wire, and circuit breakers.
P8F	Sorted electrical/electronic scrap containing, Gold, silver, and platinum family metals which is other than copper based or copper-based container other non-removable metals. Includes, but not limited to, electronic modules/housings, aluminum, and iron-based wave guides, cannon lugs, circuit boards/cards with non-removable metal frames/back, and pin wire boards.
P8G	Precious metals-bearing scrap containing beryllium.
P8I	Platinum-bearing, spark plugs (usually from aircraft).
P82	RESERVED FOR DRMS-OPE USE ONLY.
P83	Platinum-bearing- thermocouple and magnetos.
P84	Desalter kits.
P85	Gold-plated or washed buttons.
P86	Gold-filled eye-glass frames.
P87	Dust and filters from vacuum systems or other systems collecting fine particles, sweepings, and residue other than borings, turnings etc. May contain Gold, silver, or platinum family metals.
P99	RESERVED FOR DRMS-OPE USE ONLY.
VCS	Precious metals-bearing sweepings collected in vacuum cleaner bags. (Unit of measure grams.)
VGM	Gold-bearing- material such as powder, salts, foil, leaf, and pellets; dental castings, brazing alloys, dental lingual bars, or alloy gold wire, and all other gold-bearing material with 90 percent or better purity. (Unit of measure grams.)
VPM	Platinum family-bearing, material such as dental alloys, scraps, sweet) in-s, jewelry, laboratory ware, wire, and all other platinum family-bearing material with 90 percent or better purity. (Unit of measure = grams.)

SCL CODE	DESCRIPTION
VSF	Metallic silver flake derived from electrolytic processing of hypo solution; Woog cells (small electrolytic units used with dental processors for reclamation of silver); and sludge derived from cleaning of electrolytic silver recovery units and/or holding tanks. (Unit of measure = grams.)
VSM	Silver-bearing material consisting of used anodes, drillings from anodes, and grain silver, were for welding or brazing, and all other silver-bearing material with 75 percent or better purity. Includes unused silver pellets for dental amalgam. (Unit of measure = grams.)